MEMORANDUM FOR: THE RECORD:

The attached was prepared as part of the NSC follow-up of the Non-Fuel Minerals Study Phase I. It addresses questions raised by the NSC regarding Soviet potential and likely action in manipulation of metals markets in the event of a cutoff in African critical metals supplies. The assessment was made by M/AM [redacted] with a contribution from [redacted] U/IR [redacted]

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25X1

A copy of this assessment has already been forwarded to the requester by LDX.

25X1

[redacted]

Chief, M/AM

ERM 80-10507

Date 22 September 1980

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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

19 September 1980

MEMORANDUM FOR: Mr. Michael Calingaert
Deputy Assistant Secretary for
International Resources and Food Policy
Department of State

SUBJECT : Non-Fuel Minerals Study [redacted] 25X1

1. As requested in your 4 September 1980 memorandum, I am forwarding our assessment of "Possible Soviet Manipulation of Critical Metals Markets." It addresses the points raised by the NSC regarding (a) Soviet potential for, and (b) likelihood of market "manipulation" in chromium, cobalt, manganese, and platinum-group metals should export from leading southern African producers be halted for up to one year. [redacted] 25X1

2. Key judgments derived from this assessment are:

- Soviet market actions to date have not evidenced any "manipulative" policy but, on the contrary, have been responsible and generally in keeping with those of Western traders.

- Although we cannot say with certainty how these Soviets would respond to opportunities for manipulation in the event of a complete cutoff in African supplies, they probably would eschew such actions if past practice is a guide to the future.

- One main reason for taking this route would be the large financial windfall that would accrue to the Soviets from the rapid rise in world market prices from a disruption in African supplies. A mere doubling in price of platinum would hike earnings by some $400 million. 25X1

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- As for vulnerability to loss of foreign supplies, the US could offset such losses for up to six months by judicious use of stocks on hand and other immediate conservation measures.

- With the use of strategic reserves, US supplies would last for long as one year -- enough of a lead time to initiate major substitution programs.

3. I hope that the attached assessment fills your requirements. 25X1

[redacted]

Director
Economic Research

Attachment:
As stated

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Possible Soviet Manipulation of Critical Metals Markets

Introduction

The US dependence on politically unstable countries in central and southern Africa for manganese, chromium, cobalt, and platinum group metals -- essential military and industrial materials -- leaves the US potentially vulnerable to sudden supply disruptions. This vulnerability is heightened by the USSR's role as the only other significant exporter of two of these metals and its heavy involvement in the trade of all four critical metals. This situation has given rise to questions from the NSC regarding the Soviet potential for market "manipulation" in the event of a stoppage in supply from Africa for up to a year.

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Soviet Critical Metal Importance

The USSR is the world's largest producer of metals and a leading source of the four critical metals (see Annex). Near total self-sufficiency in metals provides Moscow with a far greater security of supply than that experienced by developed Western countries. This self-sufficiency, combined with its importance as an exporter of critical materials, underlies the frequent speculation by Western observers as to Soviet motives in metal market dealings. In particular, developed country dependence on the USSR for over half of its platinum group metal supplies causes concern. The importance of USSR as supplier of other critical metals has generally diminished over the past decade as alternative suppliers have emerged and as changing technologies have lessened the metals importance. 25X1 These trends are expected to continue during the 1980s.

Soviet Market Practices

Over the course of their heavy involvement in the metals trade, Soviet representatives generally have followed the pragmatic, highly businesslike practices of their Western counterparts. They have, for example, scrupulously adhered to commitments and have not reneged on existing contracts to take advantage of price changes or to respond to altered political relations with the West. Following US

imposition of trade sanctions in January 1980, for example, the Soviets continued to make deliveries of strategic metals under prior contracts and indeed elicited additional transactions. Similarly, during the Vietnam conflict the flow of critical metals from the USSR continued unabated. Nor is there any evidence that the Soviets have ever intervened in markets intending to deprive the US or the West of strategic metals. Allegations to the contrary during the cobalt "crisis" of 1978 were unsupportable as were more recent claims of Soviet attempts to tie-up Zambian cobalt through a long-term barter arrangement for arms. 25X1

The Soviets, nevertheless, have proven to be shrewd traders, highly perceptive to market situations where they can press for higher prices. In the 1970s, for example, the Soviets took advantage of the chrome shortage brought on by UN sanctions against Rhodesia to triple the export price of Soviet chrome ore -- an action followed by other exporters. Similarly, they have used their dominant role in platinum group metals trade to help maintain high prices by carefully controlling the volume of exports. At no time have they attempted to form a cartel or otherwise involve themselves in formal collusive actions. Where they are marginal metals suppliers, and price takers, the Soviets quickly adjust their prices at or near the prevailing level. 25X1

maintain production through a one-year "crisis", aided by a system of allocations, recourse to available substitutes, and draw-downs of strategic reserves. US stocks are equivalent to one year of normal demand for platinum group metals. Similar stragegic buildups are underway in France, West Germany, Italy, and soon to be in the UK. In the case of the other critical metals, the Soviet potential for disadvantaging the West through withholding supplies and preclusive buying is substantally less than the case of platinum. [redacted] 25X1

Although the Soviets have the potential for direct market intervention, we think that they would eschew any course of action that could be interpreted as a form of economic warfare and, in return, could invite a series of broader, more sustained, and much costlier counter actions by the West. A far less risky and more financially attractive option would be simply to take advantage of the market opportunities created by the cutoff in African supplies of chromium, platinum, and manganese. Assuming that prices merely doubled, the Soviets would reap a financial windfall of about $550 million based on 1979 export volumes of chromite, manganese, and platinum group metals shown in Annex Tables 2,3,and 4. They could gain even more by increasing the volume of exports but this seems unlikely given the difficulty of expanding output in the short run and the probable reluctance for security reasons to release strategic stockpiles for export. [redacted] 25X1

ANNEX

Soviet Critical Metals Situation

Platinum-Group Metals

The USSR produced about half of the world's platinum-group metals during the 1970s, South Africa nearly 40 percent, and Canada most of the remainder. Soviet production in 1979 is estimated at 3.6 million ounces. (Figure A, Table 1). [redacted] 25X1

The USSR obtains virtually all of its platinum-group metals as a by-product in the exploitation of copper-nickel ores. Soviet production consists mainly of palladium -- three times as much palladium as platinum -- whereas South African output is mainly platinum. In the event of disruption in South African supply, major importing countries would have no choice but to turn to the USSR. Soviet offerings of palladium rather than platinum could be increased marginally but in any case at substantially higher prices. [redacted]

The USSR exports most of its output of platinum-group 25X1
metals. Total exports to non-Communist countries during 1970-79 amounted to 20.8 million ounces or about two-thirds of total estimated output during that period. Some additional, although small, amounts probably were exported to other Communist countries. Annual exports reached peak levels

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during 1972-74, averaging over 2.6 million ounces, but declined to about 1.9 million ounces during 1975-79. (Table 2.) During the 1970s, the USSR accounted for 50-60 percent of 25X1 the platinum-group metals annually moving in world trade.

The USSR is assured of substantial increases in production of platinum-group metals in the 1980s as progress is made on a major project to expand production of nickel and copper at Noril'sk in Eastern Siberia. Soviet production could easily increase to about 4.5 million ounces by the mid-1980s and possibly 5.5-6.0 million ounces by 1990. As a result, the role of the USSR as a supplier of platinum-group metals to international markets will be greatly strengthened. 25X1

Chromium

The USSR is the world's largest producer of chromite. It produced an estimated 3.6 million tons in 1979, compared with about 3.0 million tons in 1970. (Table 1.) 25X1

Although the USSR now consumes most of what it produces, it was an important exporter in earlier periods. It also is an exporter of ferrochromium and other chrome alloys. Exports of ore and alloys have been on the decline both to the West and to Communist partners. Annual deliveries to non-Communist countries fell from an average of 850,000 tons yearly in 1970-75 to about 388,000 tons per annum during 1976-79. Deliveries to Communist countries

were down to 397,000 tons in 1979, from the peak of 416,000 tons reached in 1977. (Table 3.) [redacted] 25X1

The outlook for Soviet exports of chromite in the 1980s is uncertain. Although the USSR intends to increase exploitation of its large chromite reserves, it will have to settle for a slower pace of development than originally planned. Production in 1980 probably will reach 3.7 million tons, far short of the original target of 4.2 million tons. Production is being hampered because some mines are depleted and difficulties are being encountered in bringing new underground mines into operation. [redacted] 25X1

The USSR exports mostly high-grade chrome ore and recent technological advances have reduced the market demand for such high-grade ore. The use of the AOD process in the manufacture of stainless steel permits greater use of less expensive, high-carbon ferrochrome which can be produced with abundant low-grade chromite rather than expensive, low-carbon ferrochrome which utilizes scarce high-grade ores, such as Soviet ore. The AOD process is now widely used in the US, Japan, and Western Europe. [redacted] 25X1

Another uncertainty is whether the USSR, even with adequate production, will continue to export chromite. The Soviets have given strong indications that they may shift to exports of ferrochrome as others with chromite resources are doing. The Soviets have shown interest in obtaining Western

participation in ventures to produce ferrochrome, but, as yet, no arrangements have been made. [redacted] 25X1

Cobalt

Soviet cobalt is obtained mainly as a by-product in nickel production. Soviet production of about 5,800 tons in 1979 ranks second only to Zaire. (Table 1.) [redacted] 25X1

Although it has exported some cobalt in the past, Soviet production has not increased sufficiently to meet domestic demand and it has for some years been a net importer. Soviet purchases, mainly from Zaire, were some 400-600 tons per annum during most of the 1970s, increasing to about 1,000 tons in 1978-79. The increase in purchases probably is associated with the disproportionate growth in industrial needs and domestic output but also could reflect increases in strategic reserves. [redacted] 25X1

Cobalt may remain in tight supply for some years to come, but will eventually improve as work proceeds on a major project to expand nickel output at Noril'sk in East Siberia. The USSR probably will then become self-sufficient and be able to export cobalt to non-Communist as well as Communist countries. [redacted] 25X1

Manganese

The USSR is the world's largest producer of manganese ore. Production amounted to about 10 million tons in 1979,

up almost 50 percent over output in 1970, and roughly double the output of South Africa, the world's second largest producer. [redacted] 25X1

The Soviets have been major exporters of manganese for many years. Total exports averaged about 1.3 million tons per annum during the 1970s. The bulk of these exports go to other Communist countries. Soviet sales to non-Communist countries fell from about 375,000 tons in 1970 to about 100,000 tons in 1979 (Table 4). Japan and Sweden account for most of the Soviet exports to non-Communist countries. Soviet sales to the West probably fell because of increased availability from non-Communist suppliers (most notably South Africa) and possibly because of increased domestic requirements. [redacted] 25X1

If past trends continue, Soviet production could increase to about 12-13 million tons by the mid-1980s. This amount should be more than adequate to meet domestic needs and provide for a growing exportable surplus. [redacted] 25X1

TABLE 1
USSR: Production of Selected Minerals, 1970-79

	Platinum Group Metals (1)	Chromite (2)	Manganese (3)	Cobalt (2)
1970	2,500	3,000	6,841	3,700
1971	2,600	3,100	7,318	4,000
1972	2,800	3,200	7,819	4,200
1973	3,000	3,300	8,245	4,500
1974	3,200	3,400	8,155	4,800
1975	3,300	3,500	8,459	5,000
1976	3,400	3,500	8,636	5,200
1977	3,400	3,500	8,595	5,400
1978	3,500	3,500	9,037	5,600
1979	3,600	3,600	10,000	5,800

1. Thousand troy ounces.
2. Thousand metric tons.
3. Metric tons.

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Table 2

USSR: Exports of Platinum-Group Metals

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Quantity - Total (1,000 troy oz.)	1,535	1,704	2,634	2,947	2,613	1,361	2,036	1,954	1,878p	2,145p
Of which:										
West Germany	171	226	314	237	260	135	248	283	146	219*
Japan	711	911	1,219	1,402	1,111	769	842	823	980	1,008
United States	495	408	733	882	1,012	323	652	617	552	693
Other	158	159	368	426	230	134	294	231	200p	225p
Value - Total ($US million)	87	95	191	299	377	205	192	181	230e	410e

SOURCE: UN Trade Tapes.

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p - preliminary
* - Jan-Nov 1979.
e - estimate

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TABLE 3

USSR: Exports of Chromite, 1970-79

(thousand metric tons)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Exports	1,200	1,100	1,112	1,210	1,139	1,171	975	673	738	775
Non-Communist	956	789	792	914	801	793	614	257	329	352
Communist	224	299	320	302	338	378	361	416	389	397
Unknown	20	3	-	-	-	-	-	-	20	28

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TABLE 4
USSR: Exports of Manganese, 1970-79
(thousand metric tons)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total	1,200	1,400	1,300	1,300	1,482	1,411	1,342	1,352	1,186	1,317
Communist	773	915	957	1,069	1,151	1,180	1,196	1,161	1,067	1,226
Non-Communist	374	310	251	130	309	195	98	115	N.A.	N.A.
Unknown	53	175	92	101	22	36	48	76	N.A.	N.A.

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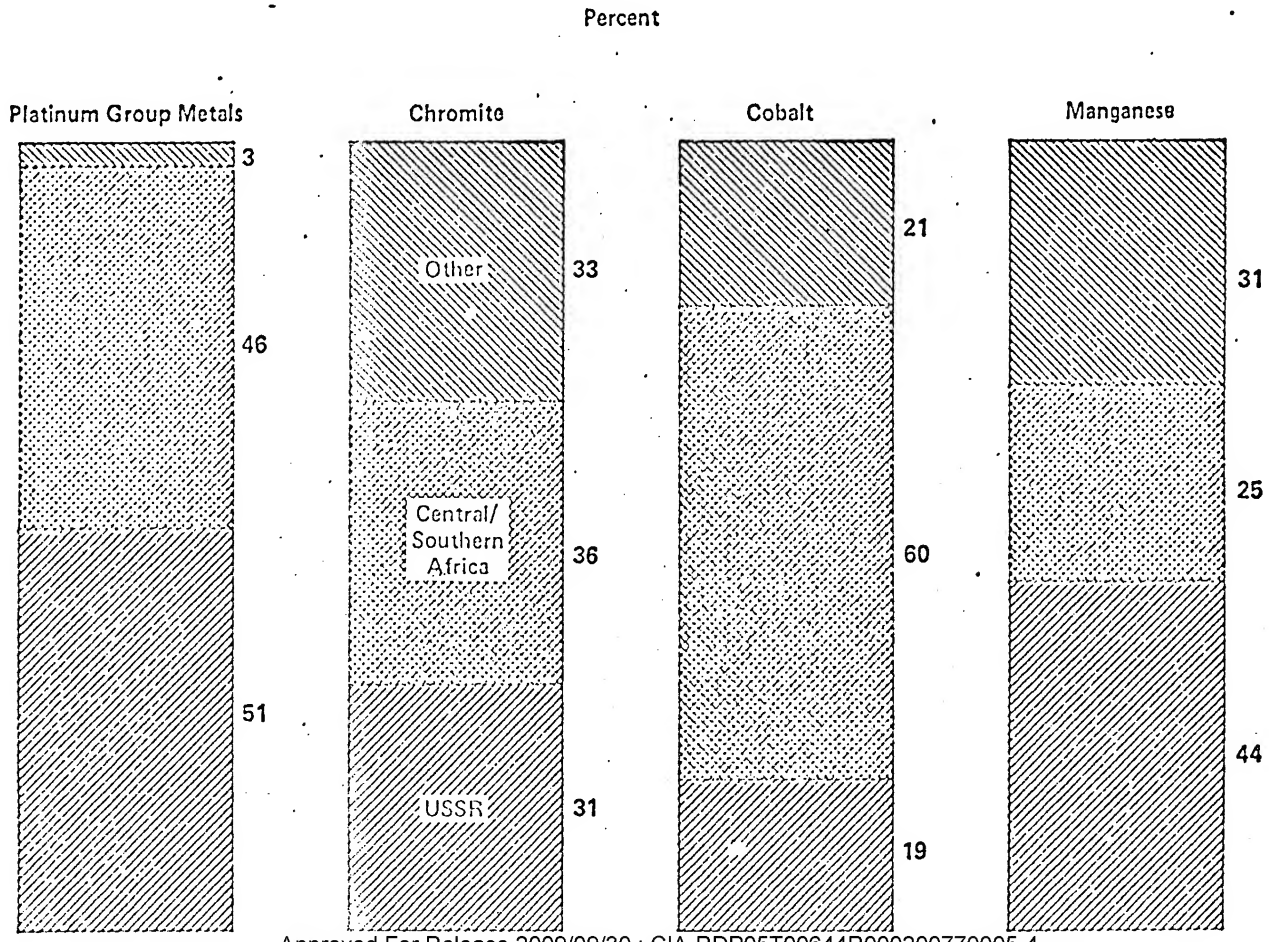
FIGURE A

USSR and Central/Southern African Share of World Production of Selected Critical Materials, 1979



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Support Project Initiation Memorandum (for Non-Scheduled Intelligence Production)	Type B	Control Number ERM 80-10642

TO: Production Control Staff

2. Title or Subject (31)
Line 1 Soviet Bloc Metals Aid to the LDCs
Line 2
Line 3
Line 4
Line 5

3. Analyst(s) & Other Contributors (31)
Line 1
Line 2

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Manhours: 8

Completion Date (y m d) 80 12 11

4. Requester and Purpose (39)
Line 1 Mr. James Todd, Chief, Industrial and
Line 2 Strategic Materials Division,
Line 3 Department of State. For distribution to the
Line 4 NSC Non-Fuel Minerals Working Group
Line 5
Line 6

Classification (39)

25X1

5. Precis (39)
Line 1 A survey of Soviet and East European economic
Line 2 and activity in the LDCs reveals that most
Line 3 metals assistance projects were in the areas
Line 4 of iron, steel, aluminum, and tin. No major
Line 5 projects involving strategic metals were
Line 6 identified.
Line 7
Line 8

APPROVAL:

		Date
	Chief, M/AM	11 December 1980
	eater)	Date
	Chief, D/M	11 December 1980
Director (for special requesters)		Date

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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

CIA No. 940
11 December 1980

MEMORANDUM FOR: Mr. James Todd
Chief, Industrial and Strategic
Materials Division
Bureau of Economic and Business Affairs
Department of State

SUBJECT : Soviet Bloc Metals Aid to the LDCs

1. In line with the interest expressed by Mr. Ron Woody of your office, we are enclosing a copy of a study we prepared on Soviet and East European metals activity in the LDCs. In brief, the study concludes that Soviet bloc aid projects have focused not on strategic metals but on such materials as steel, aluminum, bauxite, and tin. It should be noted that the study deals with aid only and does not address the Soviet metals trading pattern.

2. As discussed previously with Mr. Woody, should you wish to distribute the study to other interested members of the NSC Non-Fuel Minerals Working Group, feel free to do so. Any comments or questions are welcome and may be addressed to me.

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Chief,
Agriculture and Materials Branch
International Materials Division
Office of Economic Research

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Soviet and East European Metals Aid to the LDCs

Summary

Assertions that the USSR and its CEMA partners are engaged in a "resource war" for control of the Free World's strategic metals are not supported by a survey of Soviet bloc economic aid to the LDCs over the past twenty-five years. Indeed, no aid projects can be identified involving key strategic metals such as cobalt, chrome, manganese, and platinum. Within Africa -- the major source of strategic metals -- the USSR is thought to have only three metals compensation agreements. The USSR receives zinc from Algeria, lead concentrates from the Congo, and bauxite from Guinea in repayment for mineral development assistance to these countries. Guinea supplies about 70 percent of the USSR's bauxite imports.

Most aid -- about 35 percent of total Soviet economic aid since 1954 -- has gone for iron, steel, and aluminum projects, largely in the Middle East and in India. In addition, metals assistance programs have focused on bauxite and tin -- materials in which the Soviet bloc is heavily import dependent. The following pages attempt to rundown the major projects by geographic area. Additional detail on steel plants can be found in the first appendix. Appendix II racks up all identified metals projects in the LDCs. A Bureau of Mines chart on Soviet minerals import dependence is the final attachment.

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Latin America

CEMA aid to non-Communist Latin American LDCs has focused primarily on those commodities in which the Soviet bloc is deficient. Major assistance projects have been for the development of the Jamaican alumina industry and the modernization of the Bolivian tin industry. Together these projects have accounted for nearly 40 percent of all CEMA economic aid to Latin American LDCs since 1976. Imports account for 35 percent and 45 percent of CEMA bauxite and tin consumption, respectively. Most aid projects in Latin America call for some degree of product compensation.

In 1979 Hungary extended 250 million dollars in credits to Jamaica (the world's third largest bauxite producer) for an alumina plant. This sum represents the largest single Communist economic development credit ever extended to a Latin American country. Hungarian participation in the construction of this plant was apparently linked to its purchase of 150,000 tons of Jamaican alumina annually. Hungary plans to use this alumina to help satisfy its long-term supply contracts to other comecon countries and to earn hard currency on World markets.

In Bolivia, the USSR has to date committed approximately $70 million to upgrade the tin industry. Soviet credits of $27.5 million were first extended to Bolivia in 1970 for

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building and equipping the world's largest tin processing plant in Potosi. In 1976 the USSR extended 10 year open ended credits to Bolivia for the construction and equipping of a second tin processing plant at Marchamarca, and for the purchase of additional equipment and machinery for the Potosi plant. Credits under this agreement now total $40.8 million. Bolivia is a major tin supplier to the USSR, accounting for more than a quarter of Soviet imports during the last half of the 1970s. Although the above credits are not tied to trade, it is apparent that Soviet desire for a reliable source of tin is a predominant force behind the agreements.

In addition to these large credit extentions, there have been several smaller ones given to Latin American countries in recent years. Among them are (1) a November 1977 Soviet $30 million line of credit established for Jamaica to be used in part for geological prospecting; (2) an April 1977 Romanian line of credit for Costa Rica to be used partially for a bauxite and aluminum feasibility study; and (3) an East German $20 million line of credit established in May 1977 for Guyanan bauxite development. Also earlier this year an agreement was apparently reached on East German technical and managerial assistance to Guyana's refractory bauxite industry. Terms of the agreements allows for East German experts to remain in Guyana at least through the 1980s. In exchange, East Germany will receive refractory ore.

Asia

In recent years all comecon aid to Asia for nonferrous mining and metallurgical development has been directed towards India. In May 1977 the USSR presented India with a $340 million line of credit with most favorable repayment terms -- 20 year amortization after a three-year grace period at 2.5 percent interest. About $160 million of this is earmarked for the construction of the $350 million Jodphur alumina complex. India will repay Moscow with alumina from the plant. Also in 1977 $5 million was drawn from old Soviet credits and set aside for the purchase of equipment to help develop Indian copper mining. In June of that same year, Hungary pledged to more than double the capacity of India's aluminum plant at Korba, which it had built, to 220,000 tons annually. Expenses for this project will probably come from undrawn credits on a 1966 agreement.

Africa and the Middle East

The focus of Soviet bloc mining and metallurgical aid in the Middle East and North Africa has been on large steel and aluminum projects. Although activity in sub-Saharan Africa has tended more toward resource developments, with the exception of Guinean bauxite, Moscow and its East European clients have yet to achieve significant tangible returns through this approach.

Nearly 45 percent of Moscow's $715 million aid program in Algeria has gone into the Annaba steel plant, the largest in Africa. Eventual plant output will be 4 million tons. The USSR also plans to build a $290 million aluminum plant at M'sela. In Egypt the USSR is responsible for 75 percent of that country's steel output and 100 percent of its aluminum capacity. A fourth blast furnace at the Helwan steel plant was installed in 1977-78; capacity in the second stage is to reach 1.75 million tons. The Soviets are expanding the Nag Hammadi aluminum complex by 60 percent to 160,000 tons. In Iran, the Soviets built the Ishafan steel complex after the project was turned down by the West. Soviet economic aid to Iran exceeds $800 million and accounts for 90 percent of Iran's coal, iron ore, and cast iron output, as well as 70 percent of its steel output. In Turkey under a 1975 framework agreement pledging $1.2 billion in financial aid, the USSR will build an iron ore plant and expand the Iskenderun steel plant from one million to 6 million tons. The USSR will also finance expansion of the Seydesehir aluminum plant to 400,000 tons. Poland and France are undertaking a joint project to build Iraq's first steel plant.

Under a program begun in 1969 to develop the bauxite reserves of Guinea, the USSR now receives 2.5 million tons of bauxite per year. According to official Soviet trade

data for this commodity, last published in 1976, Guinea supplies about 70 percent of the USSR's bauxite imports with the remainder coming from Greece and Yugoslavia. Guinean bauxite imports probably support about 20 percent of the USSR's estimated annual production of 2.5 million tons of primary aluminum -- a significant degree of import dependency by any standard and particularly high for a country which is basically self-sufficient in its minerals consumption.

Other Soviet activity of note involves developing the gold mines in Mali and Ghana. a lead and zinc plant in the Congo, and the construction of a steel mill in Nigeria.

APPENDIX I

CEMA Aid to the LDC Steel Industries

Virtually all aid from the CEMA countries to the LDC steel industries has been provided by the USSR. Several East European countries, however, have acted as sub-contractors for the Soviet Union on a few major steel mill projects and have extended small amounts of credit on their own account to various minor iron and steel developments.

Soviet aid has been extended almost entirely for the construction of large integrated steel mills. Both the USSR and some East European countries have extended credits to assist in the development of several iron ore deposits but no major iron mining projects have been carried out in this way.

Soviet aid has gone chiefly to six countries: India, Pakistan, Iran, Egypt, Algeria, and Nigeria.

India. The Soviet Union has provided credits, equipment and technical aid for two of India's major integrated steel mills, Bokaro and Bhilai. It is currently aiding in the expansion of both these mills to a total annual capacity of 4.0 million metric tons each. In addition, it has signed a recent agreement with India to assist in the construction of a new greenfield mill at Visakhapatnam on the north coast of Andhra Pradesh. The mill is scheduled to have an annual capacity of 3.4 million metric tons when fully completed in

the late 1980s. The USSR will supply a large part of the mills equipment [redacted] 25X1

The USSR also has expressed a general interest in helping with the construction of two other coastal greenfield mills that India is considering. According to official Indian estimates, Soviet aid has now helped develop almost 45 percent of India's total crude steel capacity and this is expected to increase to nearly 70 percent by the late 1980s.

Pakistan. The country's only large steel mill has been built with Soviet credits, equipment and technical aid. Despite the strained relatonship between the two countries in recent years, the Soviets have completed the plant and it is now coming into production. Capacity is 1.2 million tons of crude steel.

Iran. The steel mill at Isfahan, Iran's largest and only integrated mill, was built by the USSR. Apparently payment for the plant was at least partly on barter terms with Itan building a piple to provide natural gas to the southern USSR. The Soviets have also provided equipment and technicians for the mills second stage still under construction which will bring its annual capacity to 2.15 million

Egypt. The USSR provided credits, equipment, and technicians for the construction and expansion of the Helwan

steel mill which now has or is approaching 1.75 million tons of capacity. Despite political problems between the two countries, the USSR still has at least 100 technicians working at the mill.

Algeria. In the 1960s, the USSR helped Algeria build the Annaba integrated steel mill. Now the Soviets are aiding in the mills expansion to a capacity of 1.2 million tons a year.

Nigeria. The Soviets are supplying design, equipment, supervision, and technical training for an integrated steel mill being built at Ajaokuta on the Niger river. The first stage now under construction will have a capacity of 1.3 million tons of crude steel. The Soviet price for the first stage exceeds $2.0 billion but payment is to be in installments over a ten year period. The project has encountered a variety of difficulties and is now about six months behind schedule. Further delay is likely and completion of the first stage probably will not come before the mid-1980s.

APPENDIX II

CEMA Metals Aid Projects in the LDCs

Recipient	Source	Date	Project	Remarks
East Asia				
Indonesia	Czecho-slovakia	1960	Mineral Development	Mineral Development is one among several items included in $33.6 million line of credit
South Asia				
India	Bulgaria	1967	Non-ferrous Metal installations	One item among several in $15 million line of credit
	Hungary	1966	Alumina Plants at Korba and Konya	One item among several in $52.5 million line of credit
	Poland	1962	Zinc smelter at Vishnarapatnam	One item among several in $32.5 million line of credit. Plant is under construction.
	USSR	1975	Open cast mine at Manikpur and Korba	Under $1.6 million line of credit
		1966	West Bengal Copper Mining Complex	One item among several in $222.2 million line of credit
		1966	Korba Aluminum Smelter	Under $33.3 million line of credit
		1966	Mysore Alumina Plant and Madhija Pradesh Copper Ore Complex	Two items among several in $333.3 line of credit
		1977	Alumina Complex	Under $163.2 million line of credit
Sri Lanka		1972	Aluminum Plant	One item among several in $10 million line of credit
Latin America				
Bolivia	Czecho-slovakia	1971	Antimony Smelter at Oruro	Completed $3.2 million project

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Recipient	Source	Date	Project	Remarks
Africa				
Algeria	Bulgaria	1971	Mineral Prospecting	Under a $5.4 million line of credit.
		1970	Mining complex at Kerke Tussef	Under a $40.0 million line of credit
	Czecho-slovakia	1972	Pump plant at Medea foundry	Under a $50.0 million line of credit
	East Germany	1970	Iron & Steel foundry at Medea	Under a $14.1 million line of credit
		1975	Pump plant at Medea	$19.0 million credit
		1975	Foundry at Tiaret	$93.5 million credit
	Romania	1972	Geological prospecting	Under a $100 million line of credit
	USSR	1964	Annaba steel plant & metallurgical training center	$127.8 million credit
		1971	Expansion of Annaba steel plant	$188.9 million line of credit
		1976	[illegible]um plant at M'sila	Design work underway in 1977/78 for $290 million project.
	USSR/EE	1977	Mineral exploration	400 Soviet and 400 EE geologists in country as of 1977.
Angola	Poland/ Romania	1977	Mineral exploration	Both countries signed agreements calling for the further influx of personnel, including geologists.
Benin	USSR	1974	Mine surveys	$2.0 million under a $5.3 million line of credit
	Romania	1978	Mining cooperation	Romania discussed u/i mining cooperation.

Recipient	Source	Date	Project	Remarks
Africa (continued)				
Burundi	Romania	1977	Mineral exploration	No further information
Central African Republic	Romania	1976	Mining company	Romania established a joint mining company under a 1976 agreement.
Chad	USSR	1968	Geological surveys	Under a $2.2 million credit.
Congo	Bulgaria	1972	Mine development at Mindouli	$2.5 million credit
	Romania	1973	Iron ore prospecting at Mt. Lekoumon	Under a $30 million line of credit
	USSR	1964	Geological surveys at Pointe Noire & Niori. Ore dressing complex at Bouenza	Under a $8.9 million line of credit
Congo	USSR	1975	Mineral prospecting at Kelle Gold mine at Kakamoeka	Under a $10.0 million extension of 1964 credit.
Congo	USSR	1979-80	M Fouati lead & zinc concentration plant	USSR provided technical assistance.
Ethiopia	USSR	1959	Gold mine at Adola	Under a $100 million line of credit
Ghana	Bulgaria	1961	Geological prospecting	Under a $5.6 million line of credit
	USSR	1960	Geological surveys Gold refinery at Tarkwa	Under a $40.0 million line of credit
Guinea	Hungary	1960	Technical assistance for bauxite development	Under a $2.4 million line of credit
	Romania	1974	Bauxite development	Under a $80.0 million line of credit
	USSR	1959	Geological surveys Diamond & gold mining	Under a $35.0 million line of credit

Recipient	Source	Date	Project	Remarks
Africa (continued)				
Guinea (continued)	USSR (continued)	1969	Development of Kindia bauxite complex	$92.2 million credit
		1973	Bauxite prospecting	Additional $5.0 million credit
Guinea (Bissau)	USSR	1976	Bauxite development	Under a $10.6 million line of credit
Ivory Coast	Romania	1975	Mineral development	No further information
	Romania	1977	Mineral development	Joint commission formed to study Romanian mining assistance.
Liberia	Romania	1977	Iron ore development	Romania suggests joint venture in iron ore development
Libya	USSR	1977	Iron & steel plant	Discussions to build 5 million ton plant held in 1977
Madagascar	USSR	1974	Geological surveys	Under a $13.4 million line of credit
Mali	USSR	1961	Gold mine & crushing plant at Kalana	$1 million in equipment under a $44.4 million credit.
	USSR	1967	Gold prospecting	Under a $2.8 million credit.
	USSR	1972	Kalana gold mine	$3.6 million credit.
	USSR	1974	Kalana gold mine	$11.8 million credit.
Mauritania	Romania	1974	Survey steel works (sic) at Nouadhibon Geological research equipment	Under a $10.0 million line of credit
Morocco	Czechoslovakia	1961	Copper ore development at Talaat Nouamane	$0.4 million credit
	Romania	1968	Copper flotation plant at Talaat Nouamane Copper processing plant at Ouansimi	Under a $20.0 million line of credit

Recipient	Source	Date	Project	Remarks
Africa (continued)				
Mozambique	East Germany	1977	Mineral development at Manica & Zambezia	Under a $7.5 million line of credit
	USSR	1978	Geological surveys	No further information
Nigeria	USSR	1970	Mineral prospecting equipment	Under a $6.7 million line of credit
		1975	Ajaokuta steel mill	Credit amount unknown for this $600-900 million plant; surveys underway in late 1977. First output in 1981; full operation by 1984.
Nigeria	Poland	1978	Mining cooperation	Talks held in 1978.
Senegal	USSR	1965	Gold & diamond prospecting	Under a $6.7 million line of credit
	Romania	1977	Mineral development	Cooperation agreement signed in 1977.
	Bulgaria	1978	Mining cooperation	Bulgaria agreed to provide aid in mining and geological prospecting.
Somalia	Bulgaria	1972	Tin mining at Majayhan	$1.5 million credit
Somalia	Bulgaria	1972	Geological prospecting	$5.0 million credit
Sudan	Bulgaria	1967	Mineral development	Under a $17.2 million line of credit
	Romania	1971	Iron ore prospecting	Under a $75.0 million Credit
	USSR	1969	Metallurgical operations	Not further identified $7.2 million out of a $12.8 million line of credit.
Tanzania	USSR	1966	Mineral surveys Gold mine at Mpanda	Under a $20 million line of credit

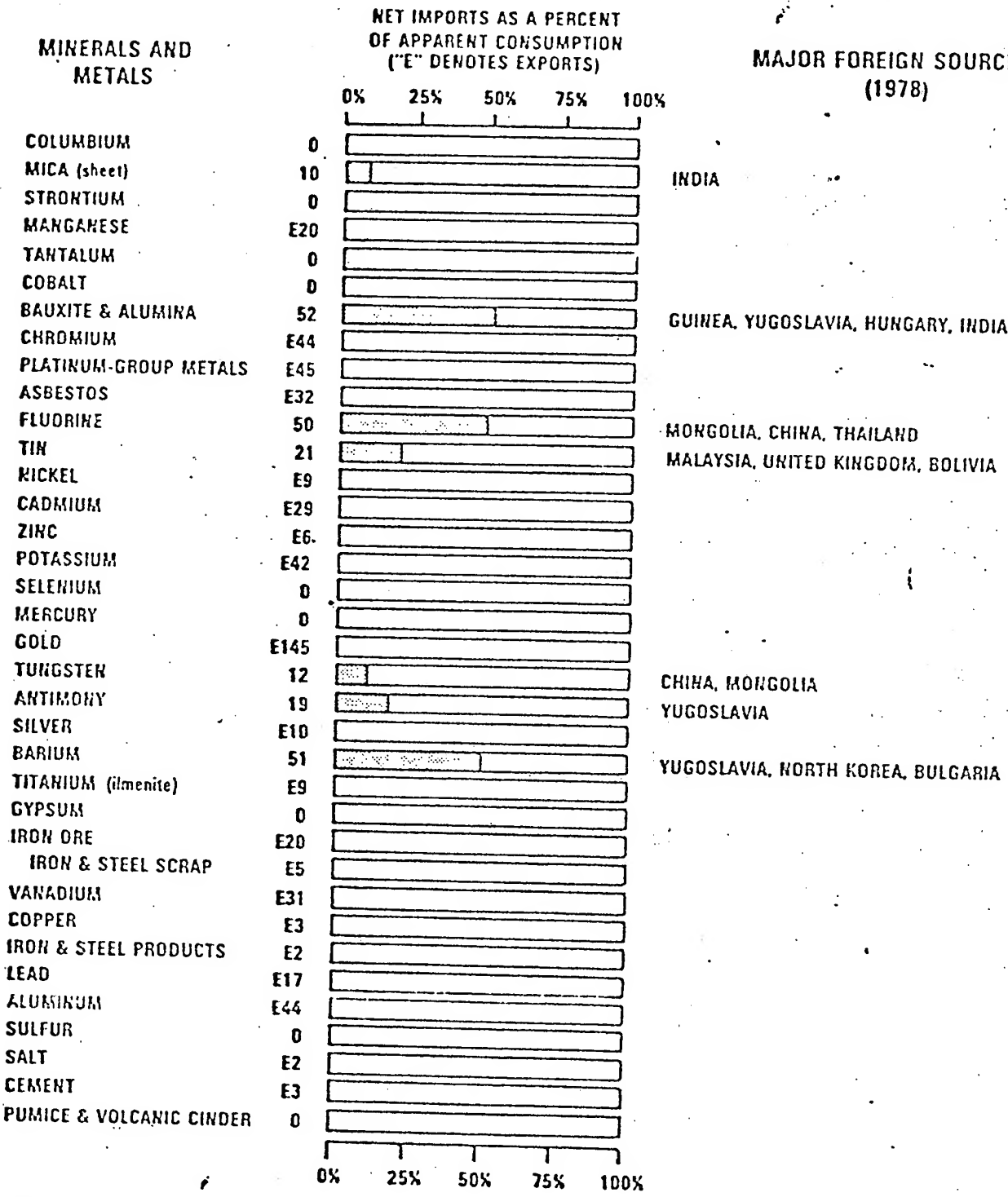
Recipient	Source	Date	Project	Remarks
Africa (continued)				
Tunisia	Bulgaria	1968	Geological studies	Value of $1.5 million out of a $26.7 million line of credit
Zambia	USSR	1967	Minerals survey	Under a $5.6 million line of credit.
Middle East				
Egypt	Czecho-slovakia	1965	Metal foundry in Cairo	Valued at $3.4 million Under a $70.0 million line of credit.
	Czecho-slovakia	1973	Reconstruction of steel foundry at Helwan	Valued at $5.7 million Under a $96 million line of credit.
	East Germany	1965	Expansion of steel mill at Abu Zaabal	Valued at $1.5 million Under a $70 million line of credit
	Poland	1964	Two cast Iron foundries	Valued at $2.5 million Under a $40 million line of credit
	USSR	1958	Central mineral Research lab Geological Surveys Manganese ore production at Elba Lead and zinc surveys Development of Baharian iron ore mines Iron ore sintering plant at Helwan Expansion of steel plant at Helwan	Under a $175 million line of credit
		1964	Expansion of steel plant	Under a $324.4 million line of credit
			Aluminum plant at Nag	"
			Ferrosilicon plant at Idfu ($2.0 million)	"

Recipient	Source	Date	Project	Remarks
Middle East (continued)				
Egypt (continued)	USSR	1964	Lead and zinc plant Copper plant at Alexandria	Trade credit for $110 million
		1971	Expansion of aluminum plant at Nag Hammadi	Under a $222.2 million line of credit
			Expansion of Helwan iron & steel plant	
Greece	Poland	1978	Bauxite development	Poles signed joint venture to process bauxite
	USSR	1978	Aluminum plant	USSR studying possibility of financing alumina plant
Iran	Bulgaria	1967	Copper mine development	Under a $10.0 million line of credit
	Czecho-slovakia	1966	Metallurgical plant at Talriz	$15.0 million credit
	USSR	1966	Ishafan steel plant	Value of $188.9 million Under a $288.9 million line of credit
		1968	Expansion of Ishafan steel plant ($125.0 million) Lead & zinc smelter at Kerman	Under a $177.8 million line of credit
		1973	Expansion of Ishafan steel plant	$187.6 million credit
		1975	"	$358.0 million credit
		1979	"	Contract signed in 1979 to expand rolling mill to 2.2 million tons from 500,000 tons.

Recipient	Source	Date	Project	Remarks
Middle East (continued)				
Iran (continued)	USSR	1978	Aluminum Plant	A $500 million project was under study in 1978.
		1977	Uranium project	Discussions held in 1977 on potential u/i uranium project
	Poland	1978	Mining facilities	Poland to construct u/i mining facilities.
Iraq	USSR	1959	Geological survey	Valued at $1.4 million Under a $137.5 million line of credit
	Poland	1977	Iron & steel plant	Joint French/Polish venture to build Iraq's first steel plant.
North Yemen	USSR	1964	Mineral surveys	Valued at $2.0 million Under a $72.2 million line of credit
South Yemen	USSR	1972	Geological prospecting Geological training center in Aden	Under a $39.6 million line of credit
Syria	Poland	1965	Steel mill at Hama	Value of $5.0 million Under a $25.0 million line of credit
	Romania	1968	Ore handling facilities at Tartus	Value of $0.6 million Under a $25.0 million line of credit
	USSR 1957	1957	Geological studies	Under a $100.0 million line of credit
	Romania	1977	Mineral exploration	Romania has 300 geologists engaged in mineral exploration in Syria.
Turkey	USSR	1967	Iskenderun steel plant ($97.0 million) Seydesehir aluminum plant ($64.0 million)	Under a $200 million line of credit

Recipient	Source	Date	Project	Remarks
Middle East (continued)				
Turkey (continued)	USSR	1969	Iskenderun steel plant	Additional $120.0 million credit plus a $46.0 million trade credit
	USSR	1972	Iskenderun steel plant (stage II)	$158.0 million credit
	USSR	1975	Iskenderun steel plant (stage III) Seydesehir aluminum plant (stage II)	Under $650.0 million credit and a framework agreement.
	USSR	1978	Iron ore pellet plant at Hasan Celebi	Additional $550.0 million credit extended under the 1975 framework agreement.

U.S.S.R. NET IMPORT RELIANCE OF SELECTED MINERALS AND METALS AS A PERCENT OF CONSUMPTION IN 1978



1/ SOURCES SHOWN ARE POINTS OF SHIPMENT TO THE U.S.S.R. AND ARE NOT NECESSARILY THE INITIAL SOURCES OF THE MATERIAL

*NET IMPORTS = IMPORTS-EXPORTS.

**APPARENT CONSUMPTION = DOMESTIC MINE OUTPUT + NET IMPORTS

MARCH-1979

BUREAU OF MINES, U.S. DEPARTMENT OF THE INTERIOR

ERM 80-10642

1-E-23

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In response to your request of 14 January, I am enclosing a copy of the draft IA upon which my presentation to Admiral Turner on 14 Jan was based.

Please keep in mind that this is a preliminary copy which has not yet completed coordination.

[redacted]

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